



DSA BULLETIN #06-01

Date: May 8, 2006

To: **DSA Regional Offices
School Districts**

From: **Division of the State Architect
Department of General Services
State of California**

SUBJECT: Kitchen Hood Fire Suppression Systems

Purpose: To alert owners to an emerging hazard that has been identified in connection with the use of Kitchen Hood Fire Suppression Systems currently installed in Cooking Kitchens in facilities under the jurisdiction of DSA.

Background: Type I Hoods are required by the 2001 California Mechanical Code, Section 509.0. Type I Hoods and Fire Suppression Systems are required by the 2001 Fire Code, Sections 1005.2.1 and 1005.2.2. Section 1005.2.2 indicates the type of system that is required. This section requires **new** systems to comply with UL 300 Standard and to be "labeled for their intended use" and "listed" by the State Fire Marshal.

Discussion: Type I Hoods with fire suppression systems are required in "Cooking Kitchens" above equipment that produces "grease laden vapors," such as Deep Fat Fryers, Broilers, Fry Grills, Hot-Top Ranges, Barbeques, Rotisseries, and similar equipment which produce comparable amounts of smoke, grease or heat in a food-processing establishment. **Warming kitchens, and areas for dishwashing do not require Type I Hoods.**

Older existing systems will not meet the nationally recognized UL 300 Standard. Older systems were designed for equipment that utilized "animal fats" (lard) as the cooking medium, and use a "Dry Chemical" extinguishing agent to suppress a fire. Currently most "Cooking Kitchens" have substituted the "animal fats" with "vegetable oils" as the cooking medium for health related issues. Vegetable oils require a higher heat to cook the food, while retaining the heat longer than the "animal fats." Newer cooking equipment is more energy efficient and further preserves the heat due to improved insulation and other technological improvements. Dry Powder extinguishing agents are unable to keep the fire suppressed long enough for the equipment and oils to cool adequately. The Dry Chemical agent is able to retard the fire, but not suppress it

sufficiently. The agent dissipates and the result is a “re-flash” or a re-ignition of the fire. Statistical data indicates a rise in re-flash events, with the main culprit of the re-flash to be Deep Fat Fryers, but other cooking equipment can also be the source.

New systems based on the UL 300 Standard utilize a “Wet Chemical” extinguishing agent which takes longer to dissipate and allows the equipment and oils to cool adequately and thereby prevent a re-flash. Statistical and full scale testing data shows that the newer systems with the Wet Chemical extinguishing agents are not prone to re-flash.

Action: As a result of the failures of the Dry Chemical Systems, the State Fire Marshal is proposing amendment language to the new California Building and Fire Codes [based on the International Building Code (IBC) and International Fire Code (IFC)] to require the upgrade of older systems to the Wet Chemical systems by not certifying Dry Chemical systems past a certain date. The language that the DSA and the Coalition for Adequate School Housing (CASH) is proposing includes the requirement that upgrading these systems in public schools will be included. The language for the time frames for converting the older systems to the new UL 300 systems is still being crafted but will undoubtedly include the next modernization or other triggering actions or situation.

Industry representatives indicated that the older systems will not be serviceable soon due to a lack of parts and agent required for service.

School Districts would be well advised to begin the upgrade process at their earliest opportunity as the adoption of the amended IBC and IFC as California’s Building and Fire codes is anticipated within the next two to three years.

NOTE: Warming Kitchens, kitchens with only ovens, and dishwashing hoods are not required to have fire suppression systems and are therefore not affected by this situation or the proposal.

For further questions or further information you may contact:

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